

RIVERS AND FLOODS, DECEMBER, 1911.

By H. C. FRANKENFIELD, Professor of Meteorology.

Two periods of general rains over the Southern States, one from December 11 to 16, and the other from December 19 to 26, all inclusive, caused flood conditions throughout the South Atlantic and East Gulf States. In no instances were the floods serious, yet in every one of the States in the districts mentioned the indications for rises above the prevailing low-water conditions were so pronounced that warnings were necessary. The lower Tombigbee River, of Alabama, was in flood as a result of the first rain period, and warnings were issued on December 15, but the remaining rivers from North Carolina to Mississippi did not rise to the flood stage until after December 23, the first date on which general warnings were issued. Warnings for the lower Tennessee and the Cumberland rivers were not necessary until December 27, and the former river was still rising at the end of the month, as was also the Tombigbee River.

There were also moderate floods in the Scioto and upper Muskingum Rivers of Ohio from December 14 to 16, inclusive, for which warnings were issued on December 13. The rivers of Indiana rose sharply, but not to flood stages, while the Illinois River remained from 1 to 3 feet above the flood stage throughout the month.

The Ohio River rise was not of great consequence, and the crest reached the Mississippi River on January 4, 1912, previous to which date, however, another rise had set in over the upper portion. The rise in the lower Mississippi began about the middle of the month and was still in progress at the end.

The losses from the floods were insignificant, while the value of property saved through the warnings, including live stock, amounted to many thousands of dollars.

ICE.

At the end of the month the Mississippi River was frozen as far south as the mouth of the Wisconsin River, whereas at the end of December, 1910, it was frozen as far south as Hannibal, Mo., 357 miles below. No floating ice was reported below Chester, Ill.

The Missouri River was frozen over as far down as Omaha, Nebr., about the same as at the end of December, 1910. The James River at Huron, S. Dak., closed on December 25, and the Des Moines River at Des Moines, Iowa, two days later. The rivers of the East remained open generally except in northern New England, where some of them closed during the last few days of the month.

MOUNTAIN SNOWFALL.

Except in the Pacific Coast States, the snow on the ground over the western Mountain States at the end of December appeared to be somewhat in excess of the normal amount, and a maintenance of average conditions during the next three months would insure a general and ample supply of water during the coming spring and summer, except possibly in California. The season, however, has hardly begun, and any forecasts of future water supply based upon present conditions would be mere conjecture.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.